

REMARKS

Reconsideration and allowance of the application are respectfully requested in light of the following remarks.

The drawings have been objected to as failing to show every feature of the invention specified in the claims. This objection is respectfully traversed. The content of the drawings is clarified by virtue of the amendment to claims 24 and 26. More specifically, the amendment to claim 26 makes it clear that the propulsion and guidance units form an additional motor 11 (illustrated in Fig. 3), which comprises the propulsion and guidance units and which is independent from the lift and displacement motor and the attitude motor.

Claim 16 has been objected to due to informalities, and claim 28 has been objected to as being in improper dependent form for failing to further limit the subject matter of a previous claim. Claim 16 has been amended to better use the term "latter." However, it is submitted that claims 5-6 are clear as drafted, as evidenced by the Office's suggested re-writing of these lines. Claim 28 has been amended to be in proper dependent form and further limit the subject matter of the previous claim.

Claims 16-30 have been rejected under 35 USC 112, second paragraph. The rejection is lengthy and not repeated in this response, but may be found on pages 5-8 of the Office Action. The rejection is traversed.

With respect to claim 16: Amended claim 16 provides a clear distinction between the flying object and the elongate body of the flying object, and each of the lift and displacement motor 3 and the attitude motor 5 include a combustible propelling charge. The adjustment of the combustion of the combustible propelling charges, which is made so that, when the motors are

operating, the position of the center of gravity remains at least substantially fixed, is clear. The functions of the lift and displacement motor 3 and of the attitude motor 5 are clear, since the lift and displacement motor 3 insures the lift and the displacements of the object in order to reach a desired position with respect to the ground while it remains in a vertical position, and the attitude motor 5 insures the maintaining of the object in the desired position with great accuracy. The functions of these two motors are therefore distinct and complementary, allowing piloting of the flying object with great precision.

With respect to claim 24: Amended claim 24 now further comprises the propulsion unit. Additionally, concerning the Office's mention of lines 2-4, the target is detected by the picture taking unit. It is well understood that there is first a detection of the target by the picture taking unit, and then the attack of the target by the object with its rear part, which allows aiming the target with the picture taking unit while the object reaches the target. Moreover, since amended claims 24 and 28 are in independent form, the propulsion unit and the guidance unit of claim 24 are clearly defined. Since the propulsion unit and the guidance unit of amended claim 24 are now independent from the lift and displacement motor and of the attitude motor, it is clear that the units form supplementary means which are able to operate independently from the motors to pilot the object with greater accuracy.

With respect to claim 26: The function of the propulsion and guidance units in the direction of the target is to propel and guide the flying object in the direction of the target. Thus, "in the direction of the target" is clearly a part of the function of the propulsion and guidance units. It is clear that the propulsion and guidance units of amended claim 26 form an additional

motor, which includes the propulsion and guidance units and which is independent from the two other motors (the lift and displacement motor and of the attitude motor).

With respect to claim 28: The first and second nozzles are introduced in amended claim 26 to clarify that they are associated respectively with the lift and displacement motor and with the attitude motor. The phrase "in the direction of the target" is clearly a part of the function of the propulsion and guidance units, as explained above. The third and fourth nozzles are distributed laterally around the elongate body.

With respect to claim 29: Amended claim 28 introduces the first and second nozzles. Therefore, claim 29 has sufficient antecedent basis. The first and second nozzles form the third and fourth nozzles only when they are oriented towards the front of the elongate body. Therefore, it is clear that the first and second nozzles may have the function of propulsion and guidance only when they are in a particular orientation.

Claims 16-19 stand rejected under 35 USC 103(a) as unpatentable over Sargent (US Pat. No. 5,620,152) in view of Hubricht (US Pat. No. 5,181,673). These rejections are respectfully traversed as follows.

The instant invention provides a flying object capable of observing, with care and while idling, a suspicious zone of a specified terrain, for example a zone concealed behind an obstacle. Such an observation requires perfect control of the trajectory of the object. For this purpose, the instant invention uses two distinct motors dedicated to their respective functions: a lift and displacement motor and an attitude motor which allow great accuracy in the following of the trajectory of the flying object. The combustion of the respective propelling charges of these two motors is adjusted so that, when they are operating, the position of the center of gravity remains

at least approximately fixed, allowing the object to stand in a fixed position with high accuracy and high resistance to transverse aerodynamic forces, including wind gusts. A picture taking unit disposed at a rear part of the flying object is used and able to observe ground in a vertical observation position corresponding to the vertical position of said flying object, which allows to attack a target by the rear part of the object while the picture taking unit observes it. (See, for example, claim 16).

Sargent discloses a missile which is able to hover like a helicopter, as well as maneuver laterally in order to intercept an airborne target. The missile incorporates three vectored nozzles, which are employed in order to provide good maneuverability. The missile contains a lift motor 5 located just forward of the center of the missile (col. 2, lines 20-22), and provides exhaust to nozzles 8, which are arranged symmetrically around the missile body and are in a fixed position relative to one another (col. 2, lines 6-10). The nozzles are connected to a gimbaled ball mechanism 7, as are three control arms 8 which protrude through the missile body. Maneuvering the missile implies increasing the tension on one of the control wires to produce a torque on the gimbal 7, causing it and the nozzles 6 to rotate in order to equalize the tension on each of the control wires (col. 2, lines 35-38). If the gimbal 7 is considered as an attitude motor, the motor will not have its own combustible propelling charge, but will only use the nozzles 6 of the lift motor 5. Therefore, motor 5 and gimbal 7 are not independent and use the same combustible propelling charge in order to pilot the flying object.

On the contrary, in the claimed invention (see, for example, claim 16), the lift and displacement motor 5 and the attitude motor 7 are independent (located on either side) and have their own combustible propelling charge. Due to the independence of the displacement and

attitude motors 5 and 7, the lift and displacement motor can bring the flying object to the desired position and the attitude motor can maintain — independently from the lift and displacement motor — the flying object in the position with great accuracy.

In addition, in claim 16, the combustion of the combustible propelling charges of the two motors are adjusted so that, when motors 3 and 5 are operating, the position of the center of gravity remains at least substantially fixed. This feature is not disclosed in the missile of Sargent since it uses the same nozzles for motor 5 and gimbal 7. Indeed, the missile of Sargent only has one fuel supply disposed on one side or the other from its center of gravity. During the combustion of the combustible propelling charges, the fuel supply goes empty thereby causing one side of the missile to get light, leading to a displacement of the center of gravity. In the claimed invention, on the other hand, the center of gravity is substantially (i.e. "approximately") fixed during the flight of the object, allowing it to stand in a fixed position with high accuracy and high resistance to transverse aerodynamic forces, including wind gusts.

Moreover, in Sargent, a camera is disposed on a tank to track both the target threat and the tethered missile, but not at a rear part of the missile in such a manner that it is able to observe the ground when the flying object is in an at least approximately vertical observation position, as required by the claimed invention. For example, claim 16 recites "said picture taking unit is disposed at a rear part of said flying object and able to observe said ground when said flying object is in said at least approximately vertical observation position." Hence, the flying object in the claimed invention is rendered less vulnerable to the terrestrial anti-aerial defenses of an enemy and may observe, with care and while idling, any suspicious zone of the terrain. In Sargent, observation of a scene with a flying object is not even a possibility.

Hulbricht is cited as disclosing a camera mounted on a missile. However, in Hubricht, a camera 5 is disposed on an elevatable platform of the armored vehicle, and another camera 60 is put on the nose of the searchhead of the missile. Thus, while the missile of Hubricht has a camera on its nose, the camera is not disposed at its rear part in order to be able to observe the ground when the missile is in an at least approximately vertical observation position, as required by the claimed invention (claim 16). Hence, even a combination of these references fails to teach the claimed invention.

Additionally, neither Sargent nor Hubricht address the problem of observing, with care and while idling, a scene with a flying object, since they do not intend to make the missile attack in a vertical position and to dispose the camera at its rear part in order to observe a scene with the vertical position. Thus, the skilled person in the art would not have motivated to combine Sargent and Hubricht in order to reach the arrangement of motors required by the claimed invention.

Finally, even if the skilled artisan would have been motivated to combine these references, the combination would not disclose the use of two distinct and independent motors, each one having its own combustible propelling charge, one motor being only used for lifting and displacing the flying object in a vertical position, the other motor being only used for maintaining the object in said vertical position, and the combustion of the combustible propelling charges of the motors being adjusted so that the position of the center of gravity remains at least substantially fixed, as required by the claimed invention and discussed above.

Since the recited structure is not disclosed by the applied prior art, either alone or in combination, claim 16 is allowable. Claims 17-24 and 26-30, depending directly or indirectly from claim 16, are similarly allowable.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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